

REMARKS

As a preliminary matter, Applicants request acknowledgement of the claim for priority made under 35 U.S.C. § 119 based on Japanese Patent Application No. 2000-377033, filed December 12, 2000.

As a further preliminary matter, the specification and drawings are amended to clarify the relationship between basement layer 44 and the free ferromagnetic layer 45.

Claims 1-10 and 17 stand rejected under 35 U.S.C. §102(b) as being anticipated by Ishi (U.S. Patent No. 5,800,935). Applicants respectfully traverse the rejection because Fig. 1 of the Ishi reference does not disclose an upper shield layer having first and second interfaces extending over a common datum plane.

The Ishi reference discloses in Fig. 1 a MR layer 6 and lead layers 8 that have a non-magnetic gap layer 3b deposited thereon. A shield layer 2b is positioned on the non-magnetic gap layer 3b. In the Office Action, the Examiner identifies interfaces I_1 and I_2 as corresponding to different datum planes as defined in the present invention, or relative heights of the interfaces as viewed in Fig. 1 of the cited reference.

Applicants' claim 1 calls for, among other things, an upper shield layer that has a first interface extending over a datum plane and a second interface that extends over the datum plane. As best seen in Fig. 5 of the present Application, the first and second interfaces 52 and 53 extend within a common single datum plane 51 (see the Specification, page 15, lines 29-31). Such a datum plane in Fig. 1 of the Ishi reference would pass through the shield

layer 2b, as well as the non-magnetic gap layer 3b. Since Fig. 1 of the Ishi reference does not disclose the datum plane of claim 1, and claims 2-10 and 17 depend either directly or indirectly from claim 1, Applicants request withdrawal of the rejection to claims 1-10 and 17.

Claims 11-16 stand rejected under 35 U.S.C. § 103(a) as being obvious over Ishi in view of Saito (U.S. Patent No. 6,343,022), and further in view of Saito (U.S. Patent No. 6,094,328). Applicants respectfully traverse the rejection with respect to claim 11 because the cited references do not disclose or suggest a magnetoresistive transducer having a product between the height of a raised portion and a magnetization intensity of an upper shield layer that is set smaller than a product between a thickness and a magnetization intensity of a domain control layer.

The Examiner focuses on Col. 2, ln. 64 to Col. 3, ln. 6 of the Saito '328 reference to reject claim 11. Applicants submit that the Saito '328 reference fails to disclose or suggest a thickness or magnetization intensity of the upper shield layer, as specified in claim 11. The Examiner indicates that the magnetization intensity can be controlled by an appropriate choice of material and thickness of the domain control layer (hard magnetic layer), which would cause a product (P1) between the height of the raised portion and a magnetization intensity of the upper shield layer to be set larger than the product (P2) between the thickness and a magnetization intensity of the domain control layer. However, the Saito '328 reference fails to disclose or suggest which relationship, namely P1 being greater than P2, or P1 being less than P2 should be selected.

In contrast, the present invention as recited in claim 11 clearly defines that P1 is smaller than P2. This product relationship causes the magnetic pulse generated on a domain control layer to be less influenced by the magnetic poles generated on the upper shield layer, *i.e.*, the raised portion. Reduction in the longitudinal bias field is thus sufficiently avoided (see Applicants' specification pg. 5, ln. 29 to pg. 6, ln. 6). The Saito '328 reference does not suggest any importance to the above product relationship selection. That is, the importance of P1 relative to P2 is not considered in the Saito '328 reference. Thus, one skilled in the art would not be motivated to make P1 less than P2 in light of the Saito '328 reference to avoid reduction in the longitudinal bias field. Claims 12-15 are considered allowable based on their chain of dependency from independent claim 11.

Claim 16 defines the domain control layers as magnetized in a normal longitudinal direction across the magnetoresistive film. Claim 16 further defines the upper shield layer as magnetized in a reverse longitudinal direction opposite to the normal longitudinal direction. The normal longitudinal direction and the reverse longitudinal direction are in parallel with a track width direction (see FIG. 11 of the present application).

In the Examiner's response to point C on pg. 5, lns. 9-16, the Examiner focuses on FIG. 2 of the Saito '022 reference. FIG. 2 is a sectional view of a magnetoresistive thin film head, which is perpendicular to a plane of a recording medium D. The track width direction should correspond to a direction above or below the plane defined by the paper's surface that is illustrated in FIG. 2. The track width direction cannot be indicated in FIG. 2.

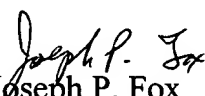
Therefore, the arrow directions in FIG. 2 are not applicable to the normal and reverse longitudinal directions presently defined in claim 16. Furthermore, the Saito '022 reference fails to disclose or suggest the direction of the magnetization of the domain control layer. The domain control layer is not shown in FIG. 2 of the Saito '022 reference.

Since the Saito '022 reference does not disclose or suggest an upper shield layer magnetized in a reversed longitudinal direction opposite to the normal longitudinal direction, Applicants request withdrawal of the §103(a) rejection to this claim.

For all of the above reasons, Applicants request reconsideration and allowance of the claimed invention. The Examiner should call Applicants' attorney if an interview would expedite prosecution.

Respectfully submitted,

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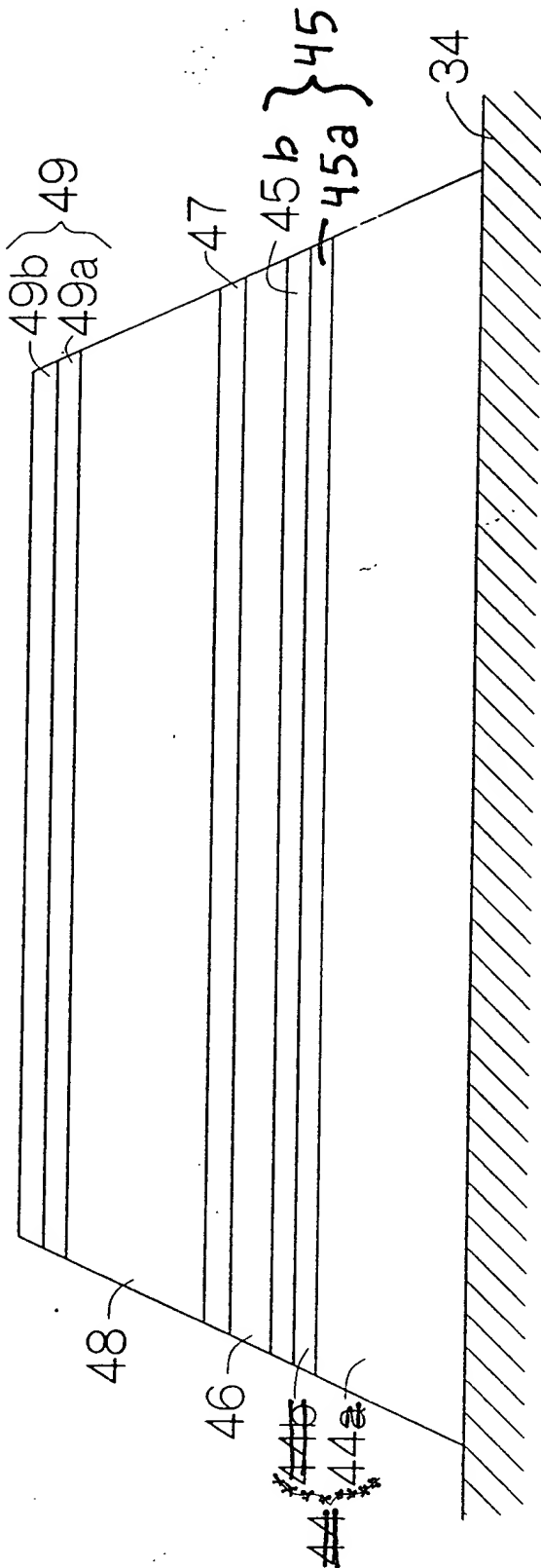


FIG.4